

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT:

(A) NAME: Transgene SA
5 (B) STREET: 11 rue de Molsheim
(C) CITY: Strasbourg
(E) COUNTRY: France
(F) POSTAL CODE: 67082
(G) TELEPHONE: (33) 03 88 27 91 00
10 (H) TELEFAX: (33) 03 88 27 91 11

15 (ii) TITLE OF INVENTION: Antitumoral composition
based on immunogenic polypeptide with
modified cell location

(iii) NUMBER OF SEQUENCES: 23

15 (iv) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Tape
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version

20 #1.25 (EPO)

(2) INFORMATION FOR SEQ ID NO: 1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 243 amino acids
25 (B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: No

(vi) ORIGINAL SOURCE:

30 (A) ORGANISM: human papillomavirus
(B) STRAIN: HPV-16
(C) INDIVIDUAL/ISOLATE: E6 protein fused F
protein signals

(vii) IMMEDIATE SOURCE:

35 (B) CLONE: E6*TMF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

Met Gly Leu Lys Val Asn Val Ser Ala Ile Phe Met Ala Val Leu Leu
1 5 10 15

Thr Leu Gln Thr Pro Thr Gly Gln Ile His Trp Gly Met His Gln Lys
20 25 30

Arg Thr Ala Met Phe Gln Asp Pro Gln Glu Arg Pro Arg Lys Leu Pro
35 40 45

Gln Leu Cys Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu
50 55 60

Cys Val Tyr Cys Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe
65 70 75 80

Ala Phe Arg Asp Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala
85 90 95

Val Cys Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg
100 105 110

His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn
115 120 125

Lys Pro Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn Cys Gln Lys Pro
130 135 140

Leu Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile Arg Gly
145 150 155 160

Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg Thr Arg
165 170 175

Arg Glu Thr Gln Leu Gly Leu Ser Ser Thr Ser Ile Val Tyr Ile Leu
180 185 190

Ile Ala Val Cys Leu Gly Gly Leu Ile Gly Ile Pro Ala Leu Ile Cys
195 200 205

Cys Cys Arg Gly Arg Cys Asn Lys Lys Gly Glu Gln Val Gly Met Ser
210 215 220

Arg Pro Gly Leu Lys Pro Asp Leu Thr Gly Thr Ser Lys Ser Tyr Val
225 230 235 240

Arg Ser Leu

(2) INFORMATION FOR SEQ ID NO: 2:

5 (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 185 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: No

(vi) ORIGINAL SOURCE:

(A) ORGANISM: human papillomavirus
(B) STRAIN: HPV-16
(C) INDIVIDUAL/ISOLATE: E7 fusion signals of
the rabies glycoprotein

5 (vii) IMMEDIATE SOURCE:

(B) CLONE: E7*TMR

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

Met Val Pro Gln Ala Leu Leu Phe Val Pro Leu Leu Val Phe Pro Leu
1 5 10 15

Cys Phe Gly Lys Phe Pro Ile Gly Ser Met His Gly Asp Thr Pro Thr
20 25 30

Asp Ser Ser Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala
50 55 60

Glu Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys
65 70 75 80

Asp Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg
85 90 95

Thr Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile
100 105 110

Cys Ser Gln Lys Pro Arg Ser Tyr Val Leu Leu Ser Ala Gly Ala Leu
115 120 125

Thr Ala Leu Met Leu Ile Ile Phe Leu Met Thr Cys Cys Arg Arg Val
130 135 140

Asn Arg Ser Glu Pro Thr Gln His Asn Leu Arg Gly Thr Gly Arg Glu
145 150 155 160

Val Ser Val Thr Pro Gln Ser Gly Lys Ile Ile Ser Ser Trp Glu Ser
165 170 175

His Lys Ser Gly Gly Glu Thr Arg Leu
180 185

10 (2) INFORMATION FOR SEQ ID NO: 3:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 base pairs
15 (B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

20 (iii) ANTI-SENSE: Yes

(vi) ORIGINAL SOURCE:

(A) ORGANISM: human papillomavirus
(B) STRAIN: HPV-16
(C) INDIVIDUAL/ISOLATE: Synthetic
5 oligonucleotide oTG5118 (E7 deleted 21
26)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

TCTGAGCTGT CATTAAATTG AGTTGTCTCT GGTTGC

36

10

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 42 base pairs
(B) TYPE: nucleic acid
15 (C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: No
(iii) ANTI-SENSE: No

20

(vi) ORIGINAL SOURCE:

(A) ORGANISM: rabies virus
(C) INDIVIDUAL/ISOLATE: Mutagenesis
oligonucleotide oTG5745

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

25

TGCACTCAGT AATACATAGG ATCCAATAGG GAATTTCCCA AA

42

(2) INFORMATION FOR SEQ ID NO: 5:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 38 base pairs
30 (B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: No
35 (iii) ANTI-SENSE: Yes
(vi) ORIGINAL SOURCE:

(C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG6390

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

GTATCTCCAT GCATGGATCC TGCAGGGTTT CTCTACGT 38

5

(2) INFORMATION FOR SEQ ID NO: 6:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 base pairs

(B) TYPE: nucleic acid

10 (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

(iii) ANTI-SENSE: Yes

15 (vi) ORIGINAL SOURCE:

(C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG6880

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

GGATCCGCCA TGGTAGATCT TGGTTTCTGA GAACAG 36

20

(2) INFORMATION FOR SEQ ID NO: 7:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

25 (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

(iii) ANTI-SENSE: Yes

30 (vi) ORIGINAL SOURCE:

(A) ORGANISM: rabies virus

(B) STRAIN: HPV-16

(C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG5377 (E6 deleted 111
35 to 115)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

TGTCCAGATG TCTTGCAGT GGCTTTGAC AG 32

(2) INFORMATION FOR SEQ ID NO: 8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 base pairs
- 5 (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

10 (iii) ANTI-SENSE: No

(vi) ORIGINAL SOURCE:

- (B) STRAIN: Synthetic oligonucleotide
oTG10829

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

15 GCGCGCTCTA GAATTATGGG TCTCAAGGTG AACG

34

(2) INFORMATION FOR SEQ ID NO: 9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 35 base pairs
- 20 (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

25 (iii) ANTI-SENSE: Yes

(vi) ORIGINAL SOURCE:

- (B) STRAIN: Synthetic oligonucleotide
oTG10830

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

30 CAGTTCTCTT TTGGTGCATG CCCCAATGGA TTTGA

35

(2) INFORMATION FOR SEQ ID NO: 10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 38 base pairs
- 35 (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

(iii) ANTI-SENSE: No

(vi) ORIGINAL SOURCE:

5 (B) STRAIN: Synthetic oligonucleotide
oTG10835

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

ATGCTAGTGC TCGATAAAC CAGCTGGTT TCTCTACG

38

10 (2) INFORMATION FOR SEQ ID NO: 11:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 35 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

15 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

(iii) ANTI-SENSE: Yes

(vi) ORIGINAL SOURCE:

20 (B) STRAIN: Synthetic oligonucleotide
oTG10836

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

TCAAATCCAT TGGGGCATGC ACCAAAAGAG AACTG

35

25 (2) INFORMATION FOR SEQ ID NO: 12:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 38 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

30 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

(iii) ANTI-SENSE: No

(vi) ORIGINAL SOURCE:

35 (C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG10833

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

CGTAGAGAAA CCCAGCTGGG TTTATCGAGC ACTAGCAT

38

(2) INFORMATION FOR SEQ ID NO: 13:

(i) SEQUENCE CHARACTERISTICS:

5 (A) LENGTH: 36 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

10 (iii) HYPOTHETICAL: No
(iii) ANTI-SENSE: Yes
(vi) ORIGINAL SOURCE:

(C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG10834

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

GCGGGCATGC GGTACCTCAG AGCGACCTTA CATAGG

36

(2) INFORMATION FOR SEQ ID NO: 14:

(i) SEQUENCE CHARACTERISTICS:

20 (A) LENGTH: 32 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

25 (iii) HYPOTHETICAL: No
(iii) ANTI-SENSE: No
(vi) ORIGINAL SOURCE:

(A) ORGANISM: vaccinia virus
(B) STRAIN: modified Ankara

30 (C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG7637 (PCR III region)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

GGGGGGGAAT TCAGTAAACT TGACTAAATC TT

32

35 (2) INFORMATION FOR SEQ ID NO: 15:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 39 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
5 (iii) HYPOTHETICAL: No
(iii) ANTI-SENSE: Yes
(vi) ORIGINAL SOURCE:
(A) ORGANISM: vaccinia virus
(B) STRAIN: modified Ankara
10 (C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG7638 (PCR III region)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:
GGGGGGGGAT CCGAGCTCAC CAGCCACCGA AAGAGCAAT

39

15 (2) INFORMATION FOR SEQ ID NO: 16:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 32 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
20 (D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: No
(iii) ANTI-SENSE: No
(vi) ORIGINAL SOURCE:
25 (A) ORGANISM: vaccinia virus
(B) STRAIN: modified Ankara
(C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG7635 (PCR III region)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:
30 GGGGGGGAT CCGGAAAGTT TTATAGGTAG TT

32

(2) INFORMATION FOR SEQ ID NO: 17:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 30 base pairs
35 (B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

(iii) ANTI-SENSE: Yes

(vi) ORIGINAL SOURCE:

5 (A) ORGANISM: vaccinia virus
(B) STRAIN: modified Ankara
(C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG7636 (PCR III region)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

10 GGGGGGGAAT TCTTGTATT TACGTGAACG 30

(2) INFORMATION FOR SEQ ID NO: 18:

(i) SEQUENCE CHARACTERISTICS:

15 (A) LENGTH: 77 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

20 (iii) ANTI-SENSE: No

(vi) ORIGINAL SOURCE:

(B) STRAIN: Synthetic oligonucleotide
oTG10502

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

25 AGCTTTTAT TCTATACTTA AAAAATGAAA ATAAACTCGA GTTGTCAAAG
CATCATCTCA ACACTGACTT GAGGTAC 77

(2) INFORMATION FOR SEQ ID NO: 19:

(i) SEQUENCE CHARACTERISTICS:

30 (A) LENGTH: 69 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

35 (iii) HYPOTHETICAL: No

(iii) ANTI-SENSE: Yes

(vi) ORIGINAL SOURCE:

(B) STRAIN: Synthetic oligonucleotide
oTG10503

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

CTCAAGTCAG TGTTGAGATG ATGCTTGAC AACTCGAGTT TATTTCATT

5 TTTTAAGTAT AGAATAAAA

69

(2) INFORMATION FOR SEQ ID NO: 20:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 39 base pairs

10 (B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

15 (iii) ANTI-SENSE: Yes

(vi) ORIGINAL SOURCE:

(C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG5925

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

20 TCAGATCTGT CGAGGGATCT GCAGCTTCTT CTAGAGGTA

39

(2) INFORMATION FOR SEQ ID NO: 21:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 44 base pairs

25 (B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

30 (iii) ANTI-SENSE: No

(vi) ORIGINAL SOURCE:

(C) INDIVIDUAL/ISOLATE: Synthetic
oligonucleotide oTG5924

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

35 AGTGAATTGC TGCAGGTACC CGGATCCGCA TCGACTATCG ACAT 44

(2) INFORMATION FOR SEQ ID NO: 22:

(2) INFORMATION FOR SEQ ID NO: 22:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 35 base pairs
- 5 (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

10 (iii) ANTI-SENSE: No

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: homo sapiens
- (B) STRAIN: Daudi cell line
- (C) INDIVIDUAL/ISOLATE: PCR primer oTG6353

15 (cloning B7.1)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

TCAGCCCTG AATTCTGCGG ACACTGTT ACAGG

35

(2) INFORMATION FOR SEQ ID NO: 23:

20 (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 33 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

25 (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: No

(iii) ANTI-SENSE: Yes

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: homo sapiens
- 30 (B) STRAIN: Daudi cell line
- (C) INDIVIDUAL/ISOLATE: PCR primer oTG6352

(cloning B7.1)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:

TTGACCCCTAA AGATCTGAAG CCATGGGCCA CAC

33